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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/404,291	09/23/1999	KENNETH LEE LEVY	LEVY2R	8258

23735 7590 07/26/2004

DIGIMARC CORPORATION
19801 SW 72ND AVENUE
SUITE 250
TUALATIN, OR 97062

EXAMINER

MCARDLE, JOSEPH M

ART UNIT	PAPER NUMBER
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2132

DATE MAILED: 07/26/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/404,291

Applicant(s)

LEVY, KENNETH LEE

Examiner

Joseph McArdle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 4-7,14-18 and 30-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-7,14-18,30-36 and 39-43 is/are rejected.
- 7) ☒ Claim(s) 37 and 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9-23-99 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/2/00</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 5-3-04 has been entered and claims 4-7, 14-18, and 30-43 are pending. Newly discovered prior art has necessitated a new grounds of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 4, 14, 30-32, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Leighton (U.S. Patent No. 5664018). In regards to claims 4, 30 and 31, Leighton discloses a design that pertains to watermarking digital works. Leighton then goes on to disclose how this process works in figure 1. According to figure 1 (also see column 3, lines 9-12), an original digital work is received.

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This disclosure meets the limitations set forth under claims 4, 30 and 31 that call for receiving original data. Leighton then discloses in column 3, lines 39-49 and in figure 1 that a watermark offset vector (this is representative of auxiliary information that is independent of the original data) is combined with a baseline watermark vector (the baseline watermark vector is based upon the original data) to create a modified watermark vector which is then embedded into the original data. These disclosures meet the exact limitations set forth under claims 4, 30 and 31 that call for receiving auxiliary information (watermark offset vector) that is independent of the original data, changing the auxiliary information based on the original data (the watermark offset vector is modified according to the baseline watermark vector, which is based on the original data) and embedding the changed auxiliary information into the original data. Claims 30 and 31 also call for having the auxiliary information to contain a plurality of bits and a total number of bits wherein changing the auxiliary information changes a plurality of the bits but does not alter the total number of bits. Leighton's design also meets these limitations because the watermark offset vector (auxiliary information) is comprised of a total number of bits that become altered according to the baseline watermark vector.

4. In regards to claim 14, Leighton discloses embedding digital watermarks (as described in the above rejection of claim 4) in such a way as to make the resulting changes invisible to a user. This meets the limitation set forth under claim 14 that calls for the embedding process to be a steganographic embedding process because Leighton's design provides a means to hide the auxiliary

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information within the original data, which is the main feature involved in steganographic embedding.

5. In regards to claim 32, Leighton discloses in column 3, lines 52-67 through column 4, lines 1-2 and in figure 2 the process by which the watermark (auxiliary information) can be extracted from the original data. It is further disclosed in the aforementioned location how a series of correlation values are used to determine if a watermark is present as well as the process by which the original watermark offset vector is retrieved. By determining if a watermark is present and properly extracting it one can be assured that they have the original, uncorrupted data. This disclosure meets the limitations set forth under claim 32 that call for decoding the embedded information (watermark) and verifying that it corresponds to the original data as well as enabling an action (obtaining the original, uncorrupted data) when the embedded information corresponds to the original data.

6. In regards to claim 39, Leighton's design disclosed above in the rejection of claim 4 describes how original digital data (which is comprised of a plurality of bits) is used to modify the watermark offset vector (auxiliary information) and form a modified watermark vector. This disclosure meets the exact limitations set forth under claim 39.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5, 33-36, and 40-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leighton in view of Barton (U.S. Patent No. 5646997). In regards to claim 5, Leighton's design disclosed above meets all of the aforementioned limitations set forth under claim 4. However, Leighton's design makes no mention of encrypting the changed auxiliary information. Barton discloses a design that pertains to embedding information into digital data. Barton further discloses in column 7, lines 14-26 that an embedded bit string is to be encrypted according to any useful encryption technique. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Barton's teachings on encrypting the embedded information into Leighton's design in order to achieve a design that is capable of encrypting the changed auxiliary information for the purpose of providing greater security for the data.

9. In regards to claims 33, 34, 40 and 41, Leighton's design disclosed above meets all of the aforementioned limitations set forth under claims 4 and 30. However, Leighton's design makes no mention of embedding the auxiliary information within a photograph and then printing the photograph with the embedded information in it. Barton discloses in column 1, lines 23-32 that one such media in which information can be embedded into is photographs. Barton further discloses in the aforementioned location that once the information is

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embedded in the original photograph it can then be printed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Barton's teachings on embedding auxiliary information into media such as photographs into Leighton's design in order to achieve a design in which the auxiliary information is embedded in a photograph that can then be printed on an identification document.

10. In regards to claim 35, 36, 42 and 43, Barton further discloses in column 3, lines 56-59 and in column 3, lines 23-30 that meta-data (auxiliary information) to be embedded can include authentication information such as a name and other identifying information. This disclosure allows for meta-data (auxiliary information) to be added/altered by original information in the photograph so that it can contain things such as names and addresses. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Barton's teachings on embedding auxiliary information into media such as photographs into Leighton's design in order to achieve a design that is capable of containing information correlated with the identification document such as a name and address.

11. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leighton in view of the applicant's own admitted prior art. Leighton's design disclosed above meets all of the aforementioned limitations set forth under claim 14. However, Leighton's design makes no mention of changing the auxiliary information based on unchanged original data bits to be purposely skipped (non-embed bits) during embedding. On page 17, lines 13-29 of the

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specification, the applicant directly references two previously known methods of steganographic embedding that disclose the exact aforementioned limitations. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute these steganographic embedding methods into Leighton's design in order to achieve a design that incorporates the applicant's own admitted prior art (see page 17, lines 13-29 of the applicant's specification).

12. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leighton and Barton as applied to claim 4 above, and further in view of Davis (U.S. Patent No. 5970147). In regards to claim 6, Leighton and Barton's design disclosed above meets all of the aforementioned limitations of claim 5. However, Leighton and Barton's design makes no mention of storing an encryption key in a database so that both an encoding and decoding device can access it. Davis discloses a design directed towards cryptographic devices. Davis goes on to disclose in column 4, lines 43-54 how encryption keys can be transferred from a cryptographic device to a database. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Davis design features relating to storing encryption keys in a database into Leighton and Barton's design in order to achieve a design that is capable of storing encryption keys in a database so that they can be accessed by encoding and decoding devices.

13. In regards to claim 7, Leighton and Barton's design disclosed above meets all of the aforementioned limitations of claim 6. Barton further discloses in

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column 9, lines 24-36 how MPEG digital movies can be encoded and how they are done so by using a plurality of frames. This disclosure meets the limitations set forth under claim 7 that call for the original data to have a series of segments. However, Leighton and Barton's design makes no mention of allowing a decoding device to contain the encryption key used for all the segments. Davis discloses in column 4, lines 43-54 how encryption keys are initially stored in the cryptographic devices (decoding device). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Davis's design feature of allowing a cryptographic devices (decoding device) to store an encryption key into Leighton and Barton's design in order to achieve a design that is capable of allowing a decoding device to store an encryption key to be used for decoding the plurality of segments.

14. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leighton in view of Barton in view of Wortly (U.S. Patent No. 4422171). Leighton's design disclosed above meets all of the aforementioned limitations set forth under claim 4. However, Leighton's design makes no mention of allowing the original data to comprise a plurality of frames. Barton discloses in column 9, lines 24-36 how MPEG digital movies can be encoded with additional information (auxiliary information) and how this is done so by using a plurality of frames. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Barton's teachings on encoding MPEG digital movies with additional information (auxiliary information)

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by using a plurality of frames into Leighton's design in order to achieve a design that is capable of embedding auxiliary information into digital data including MPEG digital movies. Leighton and Barton's design in combination makes no mention of placing changed auxiliary information in frame/global headers associated with the frames. Wortly discloses a design that is directed towards how data can be packaged and specifically discloses in column 4, lines 24-32 how header fields of data frames can be used to store information such as data block numbers and sequencing numbers. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Wortly's design features related to placing relevant information in header fields into Leighton and Barton's design in order to achieve a design that is capable of allowing changed auxiliary information to be placed into frame/global headers.

Allowable Subject Matter

15. Claims 37 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph McArdle whose telephone number is (703) 305-7515. The examiner can normally be reached on Weekdays from 8:00 am - 5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (703) 305-1830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'JMA' or similar, enclosed within a simple, irregular loop.

Joseph McArdle
Examiner
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jmm